

Appl. No. 10/811,414
Amdt. Dated January 1, 2006
Reply to Office Action of October 4, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1-18 (canceled).

Claim 19 (new): A method for making a field emission display, the method comprising the steps of:

- (1) providing a detachable substrate having a planar surface;
- (2) forming gate electrodes in a predetermined pattern on the planar surface of the detachable substrate;
- (3) forming an intermediate layer on the gate electrodes;
- (4) forming a catalyst layer on the intermediate layer;
- (5) forming a spacer on the catalyst layer, in a configuration corresponding to a predetermined pattern;
- (6) forming carbon nanotube arrays extending from the catalyst layer;
- (7) forming cathode electrodes on first ends of the carbon nanotube arrays; and
- (8) removing the detachable substrate, and removing portions of the intermediate layer corresponding to positions of the carbon nanotube arrays so as to expose opposite second ends of the carbon nanotube arrays to the gate electrodes.

Claim 20 (new): The method as recited in claim 19, further comprising the following step after step (1):

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forming a first protective layer on the planar surface of the detachable substrate;

and wherein in step (2) the gate electrodes are formed on the first protective layer.

Claim 21 (new): The method as recited in claim 20, wherein a thickness of the first protective layer is in the range from 10nm~10 μ m.

Claim 22 (new): The method as recited in claim 20, wherein the first protective layer comprises material selected from the group consisting of glass, metal coated insulating material, silicon, silicon oxide, mica, and ceramic material.

Claim 23 (new): The method as recited in claim 19, wherein the intermediate layer comprises material selected from the group consisting of glass, silicon, silicon oxide, mica, and ceramic material.

Claim 24 (new): The method as recited in claim 19, wherein a thickness of the intermediate layer is in the range from 1 μ m~1000 μ m.

Claim 25 (new): The method as recited in claim 24, wherein the thickness of the intermediate layer is in the range from 10 μ m~200 μ m.

Claim 26 (new): The method as recited in claim 19, further comprising the following step after step (3):

forming a second protective layer on the intermediate layer;

and wherein step (4) the catalyst layer of is formed on the second protective layer.

Claim 27 (new): The method as recited in claim 26, wherein a thickness of the second protective layer is in the range from 10nm~1000nm.

Claim 28 (new): The method as recited in claim 26, wherein the second protective layer comprises material selected from the group

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consisting of glass, silicon, silicon oxide, mica, and ceramic material.

Claim 29 (new): The method as recited in claim 26, further comprising the following step after step (8):

removing portions of the second protective layer corresponding to the positions of the carbon nanotube arrays so as to expose opposite second ends of the carbon nanotube arrays to the gate electrodes.

Claim 30 (new): The method as recited in claim 19, wherein the spacer comprises material selected from the group consisting of glass, metal coated insulating material, silicon, silicon oxide, mica, and ceramic material.

Claim 31 (new): The method as recited in claim 19, wherein a thickness of the spacer is in the range from $1\mu\text{m}$ to 1mm .

Claim 32 (new): The method as recited in claim 31, wherein the thickness of the spacer is in the range from $10\mu\text{m}$ – $500\mu\text{m}$.

Claim 33 (new): The method as recited in claim 19, wherein step (7) comprises the steps of:

forming a layer of negative feedback resistance on the first ends of the carbon nanotube arrays; and

forming cathode electrodes on the layer of negative feedback resistance.

Claim 34 (new): The method as recited in claim 33, wherein the negative feedback resistance comprises silicon or an oxide.

Claim 35 (new): The method as recited in claim 19, wherein a thickness of the catalyst layer is in the range from 1nm to 10nm .

Claim 36 (new): The method as recited in claim 19, further comprising the following step after step (8):

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applying a laser to the carbon nanotube arrays in order to remove the catalyst layer.

Claim 37 (new): A method of making a field emission display, comprising steps of:

- providing a detachable substrate;
- locating a catalyst layer and an gate electrode on said substrate;
- growing carbon nanotube arrays on said catalyst layer with roots of the carbon nanotube arrays extending from the catalyst layer;
- locating a barrier upon said substrate;
- disposing a cathode electrode upon the barrier under a condition that tips of carbon nanotubes of said carbon nanotube arrays are embedded in said cathode electrode;
- removing said substrate including said catalyst layer and exposing said roots adjacent to said gate electrode; and
- positioning an anode electrode spatially away from said roots opposite to said cathode electrode.